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ABSTRACT

Presented is a summary of a study made to identify existing two and four year Industrial Engineering Technology programs in the United States. A preliminary tabulation was made of the data procured and a model for identification was developed for discussion. A survey form was used and sent to 205 schools identified as possibly having such a curriculum. Ninety-one questionnaires were returned with 63 replies indicating the existence of such a program. A table is presented showing a summary of those schools that either had an AAS or BS program, or both. A copy of the letter sent, the survey questionnaire, and a bibliography are included. (EB)

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Colorado State University
Fort Collins, Colorado 80523

INDUSTRIAL ENGINEERING TECHNOLOGY CURRICULA RAP SESSION

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Abstract

A study was made to identify existing two and four year Industrial Engineering Technology programs in the United States. A preliminary tabulation was made of this data and a model for identification developed for discussion.

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INTRODUCTION

This paper was generated to form a basis for discussion at this year's rap session. The session was requested at the planning meeting last year to extend those disciplines previously covered to include the field of Industrial Engineering Technology.

After it was learned that this rap session would be scheduled, a study was initiated to locate those schools in the United States having an interest in Industrial Engineering Technology. The preliminary results of this study are included in this paper. Caution should be exercised in use of such data, since insufficient time was available to verify results.

PROBLEM OF IDENTIFICATION

It became evident in attempting to identify schools interested in Industrial Engineering Technology that a wide variety of programs existed. It was decided to identify only those programs within Engineering Technology curricula, rather than cover the broad spectrum including Industrial Engineering Science and Industrial Technology. Figures 1 and 2 illustrate a possible mode of identification.

A combination of theory and skill can be used in defining the nature of these programs and the level within each program area. Figure 2 specifically indicates various defined areas within the general engineering personnel spectrum.

Each disciplinary area has defined different regions on this map and a separate plane exists for each disciplinary area. Figure 3 illustrates a set of planes, each identified to a nominal measurement.

Figure 4 illustrates a possible Industrial Engineering plane and is unique in the set of engineering spectrum planes. The areas of Industrial Technology, Engineering Technology, and Engineering Science most likely overlap and clear boundries do not exist. Engineering Technology generally occupies the central area of such a plane. Industrial Engineering Technology, then, is represented by the shaded area in Figure 4. Hopefully, further discussion may clarify more fully the identification of the area of Industrial Engineering Technology.

Within the definable area of Industrial Engineering Technology, both AAS and BS programs exist. Part of the study was to determine those schools providing these two programs.

SURVEY

In January, a survey form was sent to 205 schools identified as possibly having an Industrial Engineering Technology curriculum. The survey questionnaire was developed to determine the person responsible for that program at each institution. Ninety-one institutions returned the questionnaire with 63 replies indicating the existence of such a program at their institution and 28 replies indicating no such program.

Since ECPD has provided a well defined description of the Engineering Technology area and has developed guidelines for accreditation of such program, the question of ECPD accreditation was included. Out of the 63 schools responding, 21 indicated they had ECPD accreditation either of candidacy or of full accreditation. It seems certain that some schools were not fully aware of the ECPD accrediting activity, since this number exceeds that listed by ECPD in the area of Industrial Engineering Technology.

The questionnaire requested whether the AAS and/or BS degree was offered. Thirty schools indicated they offered the AAS degree program and 16 indicated they offered the BS program.

Table II provides a summary of those schools responding that either had a AAS or BS program, or both. The number of hours (HRS) is the number of semester hours listed by that school. In the case of schools having both the AAS and the BS program, the number indicates the hours required in the BS program. Replies from those schools indicating total number of quarter hours in a program were adjusted to indicate the equivalent number of semester hours. The remaining columns of Table I indicate requirement of:

(a) Algebra and/or Trigonometry (AG-TG)

(b) Calculus (CAL)

(c) Statistics (STAT)

(d) Finite Math (FNM)

A wide variation of response occurred to these questions.

The last part of the questionnaire requested information concerning the technical courses offered. The specific courses listed apparently followed closely actual curricula practice, since they received a heavy positive response (See Table II). Remaining courses, as write-ins, received a variety of response with Industrial Safety providing the most frequent response as a write-in course.

The data provided in this report is preliminary and was generated for discussion purposes only. It is hoped that the extent and quality of information available on Industrial Engineering Technology programs will expand in the future. Any suggestions you may have will be appreciated.

SUMMARY

The purpose of this paper was to provide materials for discussion and future development. An initial survey has been made and schools having Industrial Engineering Technology program identified. Caution should be exercised in the use of this data, since no feedback has been gained regarding accuracy of the materials collected. It is hoped that in the future, the project can be expanded and additional information collected regarding the Industrial Engineering Technology program. The motivation for such effort is to provide information to those schools offering curricula in this rapidly growing field of Industrial Engineering Technology.

Florissant Valley Community College

3400 PERSHALL ROAD • ST. LOUIS, MO. 63135 • JAckson 4-2020 / Area Code 314

January 22, 1975

Dear Colleague:

We are attempting to determine those schools in the United States that have a program in Industrial Engineering Technology. If you have such a program either at the Associate or Bachelor level, please complete the attached survey questionnaire and return in the self-addressed stamped envelope.

The purpose of this survey is to determine the basic structure of existing Industrial Engineering Technology programs and to develop a listing of schools having such a program. We will compile these and return a copy of the full list to all schools reporting to the survey questionnaire. If interest warrants, we will try to arrange a gathering of program representatives at the forthcoming American Society of Engineering Education conference in Fort Collins, Colorado, in June 1975.

Sincerely,

William F. Schaliert

William F. Schaliert, P.E.
Chairman, Engineering Division

WFS/rw

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SURVEY QUESTIONNAIRE

Please verify the following information and supply additional data.

1) Name of School: _____

_____

Address: _____

_____

2) Person in charge of Industrial Engineering Technology Program:

_____

3) ECPD Accredidation? NO _____
CANDIDATE _____
FULL _____

4) Degrees offered: AAS _____
BS _____
OTHER _____

5) Number of hours in the curriculum
Semester_____ Quarter_____

6) Required Math courses

Algebra _____
Trigonometry _____
Calculus I _____
Calculus II _____
Calculus III _____
Statistics _____
Finite Math _____
Other _____

7) Industrial Engineering Technology Courses offered

Course	Hours
Job Design & Work Measurement	
Production Control	
Industrial Cost	
Plant Layout & Materials Handling	
Quality Control	
Other	

NOTE: Please attach a cirriculum outline

TABLE I

DIRECTOR-SCHOOL	ECPD	AAS	BS	HRS	AG-TG	CAL	STA	ENM
J. R. SONGER BLUE RIDGE COMM COLL PO BOX 80 WEYERS CAVE VA24486	NO	YES	NO	74	YES	YES	NO	NO
H. L. DURST BROOME COMM COLL BINGHAMTON NY13902	NO	YES	NO	69	YES	YES	YES	NO
DR. R. GOETZ CENTRAL MO ST UNIV WARRENSBURG MO64093	NO	YES	YES	32	YES	YES	YES	NO
G. GIFFORD CORNING COMM COLL SPENCER HILL CORNING NY14830	NO	YES	NO	16	YES	NO	NO	NO
M. RUSEN CLEVELAND ST COLL PO BOX 1205 CLEVELAND TN37311	NO	YES	NO	33	YES	NO	NO	NO
W. D. COLEMAN EASTERN ILLINOIS U CHARLESTON IL61920	NO	NO	YES	120	NO	NO	YES	NO
E. D. BENSON ERIE COMM COLLEGE MAIN&YOUNGS BUFFALO NY14221	NO	YES	NO	66	NO	NO	NO	YES
DR. J. HALES FAIRMONT ST COLLEGE FAIRMONT WV26554	NO	YES	YES	128	YES	NO	YES	NO
H. MCMAHON FLORISSANT VAL CC FERGUSUSON MO63135	NO	YES	NO	72	YES	YES	NO	NO

DIRECTOR-SCHOOL	ECPD	AAS	BS	HRS	AG-TG	CAL	STA	ENM
J. BEESON, PE. FORSYTH TECH INST 2100 SILAS CREEK WINSTON-SALEMNC27103	FULL	YES	NO	89	YES	YES	NO	NO
DR. R. C. NININGER FRANCIS MARION COLL FLORENCE SC29501	FULL	NO	YES	120	YES	NO	YES	NO
R. A. KECK GASTON COLLEGE DALLAS NC28034	FULL	YES	NO	81	YES	YES	YES	NO
DR. C. O. HUEY GEORGIA SOUTHERN COL STATESBORO GA30458	NO	NO	YES	143	YES	YES	NO	NO
D. FERRIS GROSSMONT COMM COLL 8800 GROSSMONT DR EL CAJON CA92020	NO	YES	NO	34	YES	NO	NO	NO
R. E. PEALE INDIANA U-PURDUE U 1100 W MICHIGAN ST INDIANAPOLIS IN46202	FULL	YES	YES	134	YES	YES	YES	NO
DEAN V. L. SPRINGER INDUSTRIAL ENGR COLL 205 W WACKER DR CHICAGO IL60606	NO	YES	YES	164	YES	NO	YES	NO
D. W. BUCHANAN JEFFERSON TECH INST 4000 SUNSET BLVD STEUBENVILLE OH43952	NO	YES	NO	72	YES	YES	YES	NO
R. SEYMOUR KELLOGG COMM COLL 450 NORTH AVE BATTLE CREEK MI49016	NO	NO	NO	18	YES	NO	NO	NO

DIRECTOR-SCHOOL	ECPD	AAS	BS	IRS	AG-TG	CAL	STA	ENM
J. A. WENDEL KENT ST UNIV PO BOX 91 SALEM OH44460	NO	YES	NO	78	YES	YES	NO	NO
C. DANNER KENT ST UNIV UNIVERSITY DR PHILADELPHIA OH44663	FULL	YES	NO	78	YES	YES	NO	NO
E. V. GARDNER KS ST COLL OF PITT PITTSBURG KS66762	NO	YES	YES	124				
PROF. J. ROSKIN LA PIERCE COLLEGE 6201 WINNETKA AVE WOODLAND HILLCA91364	NO	YES	NO					
PROF. C. KIRSHNER LA VALLEY COLLEGE 5800 FULTON AVE VAN NUYS CA91401		NO	NO	54	YES	YES	NO	NO
R. C. STRAIN LAKELAND COMM COLL MENTOR OH44060	NO	YES	NO	78	YES	NO	NO	NO
DR. R. E. MICHEL LAWRENCE INST 21000W TEN MILE RD SOUTHFIELD MI48075	NO	YES	NO	77	YES	NO	YES	NO
W. SMITH, PE. LORAIN CO COMM COLL 1005 N ABBE RD ELYRIA OH44035	NO	YES	NO	80	YES	YES	NO	NO
H. J. APFELBAUM, PE. LOWELL TECH INST 1 TEXTILE AVE LOWELL MA01854	CAND	NO	YES	121	YES	YES	YES	NO

DIRECTOR-SCHOOL	ECPD	AAS	BS	HRS	AG-TG	CAL	STA	ENM
J. WATSON MARION TECH COLLEGE 1465 MT VERNON AVE MARION OH43302	NO	YES	NO	81	YES	YES	YES	NO
R. E. MAGOWAN MEMPHIS ST UNIV MEMPHIS TN38152	FULL	NO	NO	132	YES	YES	NO	NO
DR. R. E. MAGOWAN MEMPHIS ST UNIV MEMPHIS TN38152	FULL	NO	YES	138	YES	YES	YES	NO
PROF. R. RUDOLPH MILWAUKE SCH OF ENGR 1025 N MILWAUKEE MILWAUKEE WI53201	FULL	YES	NO	87	YES	YES	YES	NO
DR. F. E. COTTON, JR MISSISSIPPI ST UNIV DRAWER NU MISSISSIPPI MS39762	NO	NO	NO	139	YES	YES	NO	NO
R. F. O'HAGAN MORAINE PARK TECH IN 235 N NATIONAL FOND DULAC WI54935	NO	NO	NO	18	YES	YES	NO	NO
W. MOFFETT MS GULF COAST JR COL PERKINSTON MS39573	FULL	YES	NO	64	YES	NO	NO	NO
L. L. OTTO MUSKEGON COMM COLL 221 S QUARTERLINE MUSKEGON MI49447	NO	YES	NO	62	YES	NO	NO	NO
DR. J. R. TROXLER N ARIZONA UNIV PO BOX 15600 FLAGSTAFF AZ86001	NO	NO	YES	125	YES	YES	YES	NO

DIRECTOR-SCHOOL	ECPD	AAS	BS	HRS	AG-TO	CAL	STA	ENM
J. KENNEDY N CENTRSL TECH COLL 2441 KENWOOD CIRCL MANFIELD OH44906	NO	YES	NO	YES	YES	NO	NO	
DR. I. ENGELSON NEWARK COLL OF ENGR 323 HIGH ST NEWARK NJ07102	NO	NO	YES	18	YES	YES	YES	NO
DEAN H. FOX NY INST OF TECH 888 7TH AVE NEW YORK CITYNY10019	NO	YES	YES	16	YES	YES	YES	NO
G. FORS PORTLAND COMM COLL 12000SW 49TH AVE PORTLAND OR97219	NO	YES	NO	14	YES	YES	NO	NO
PROF. C. D. ROSE PURDUE UNIV 2233 171ST ST HAMMOND IN46323	FULL	YES	YES	16	YES	YES	YES	NO
PROF. E. E. JACKSON PURDUE UNIV 2101 COLISEUM BLVD FORT WAYNE IN46805	NO	YES	YES	17	YES	YES	YES	NO
DIR OF IND ENGR S TECHNICAL INST CLAY ST MARIETTA GA30060	FULL	NO	YES	152	YES	YES	YES	NO
A. U. MCFARLIN SAN JOSE CITY COLL 2100 MOORPARK SANJOSE CA95114	NO	NO	NO	60	YES	NO	NO	NO
I. MANSFIELD SCHOOLCRAFT COLLEGE 18600HAGGERTY RD LIVONIA MI48151								

DIRECTOR-SCHOOL	ECPD	AAS	BS	HRS	AG-TG	CAL	STA	ENM
DR. R. DI PIPPO SE MASSACHUSETTS U N DARTMOUTH MA02747		NC	YES	127	YES	YES	NO	NO
W. F. ELWOOD SEMINOLE JR COLLEGE SANFORD FL32771	NO	NC	NC	66	YES	NO	NO	NO
G. E. MAKSI ST TECH INST MEMPHIS 5983 MACON COVE MEMPHIS TN38128	NO	YES	NC	84	YES	YES	YES	NO
J. E. MAHAN ST TECHNICAL INST 120 WHITE RIDGE NASHVILLE TN37209	FULL	NC	NC	79	YES	NO	YES	NO
PROF J ANTONOPOULOS STATEN ISLAND COLL 715 OCEAN TERRACE STATEN ISLANDNY10301	NO	YES	NC					
M. MATHUR TECH ED CENTER PO DRAWER 1767 ORANGEBURG SC29115	CAND	NC	NC	78	YES	YES	YES	NO
J. JEDYNEH THAMES VALLEY COLL 574 NEW LONDON NORWICH CT06360	FULL	YES	NC	105	YES	YES	YES	NO
DR. W. E. BROWN TRENTON ST COLLEGE TRENTON NJ08625	NO	NC	YES	128	YES	YES	YES	NO
DR. J. TOOLEY U OF EVANVILLE PO BOX 329 EVANVILLE IN47701	NO	YES	NC	75	YES	YES	NO	NO

DIRECTOR-SCHOOL	ECPD	AAS	BS	HRS	AG-TG	CAL	STA	ENM
M. A. GRIFFING UNIV OF ALABAMA UNIVERSITY AZ35486								
R. J. BUHMAN UNIV OF NEBRASKA OMAHA NE68101	CAND	YES	YES	130	YES	YES	YES	NO
DR. G. M. SHAW UTAH STATE LOGAN UT84322								
J. L. SMITHSON VENTURA COLLEGE 4667 TELEGRAPH RD VENTURA CA93003	NO	YES	NC	60	YES	NO	NO	NO
W. VOGEDES WAKE TECH INST RTE10 BOX 200 RALEIGH NC27603	FULL	YES	NC	89	YES	YES	NO	NO
D. GARRETT WASHTENAW COMM COLL ANN ARBOR MI48106		YES	NC	60	YES	NO	NO	NO
L. A. WILSON WAYNE COMM COLL PO BOX 1878 GOLDSBORO NC27530		YES	NC		YES	YES	NO	NO
PROF. K. RANDALL WEBER ST COLLEGE OGDEN UT84403	NO	NC	YES	152	YES	YES	YES	NO
G. HARTMAN WILSON TECH INST 902 HERRING AVE WILSON NC27893	NO	YES	NC	88	YES	NO	NO	NO

TABLE II

INDUSTRIAL ENGINEERING TECHNICAL COURSES

Course	Institutions Responding
Job Design & Work Meas./Time & Motion Study	42
Production Control	44
Ind. Cost Analysis	30
Plant Layout & Mat. Handling	46
Quality Control	45
Industrial Org./Supervision	15
Computers Application	2
Industrial Safety	9
Ind. Materials & Methods	4
Human Factors in Eng. Design	3
Inspection Procedures	1
Reliability	1
Maintenance Mgt.	1
Process Planning	1
Principles of Ind. Hygiene	1

Technological Personnel Spectrum Map

THEORY - SKILL MIX

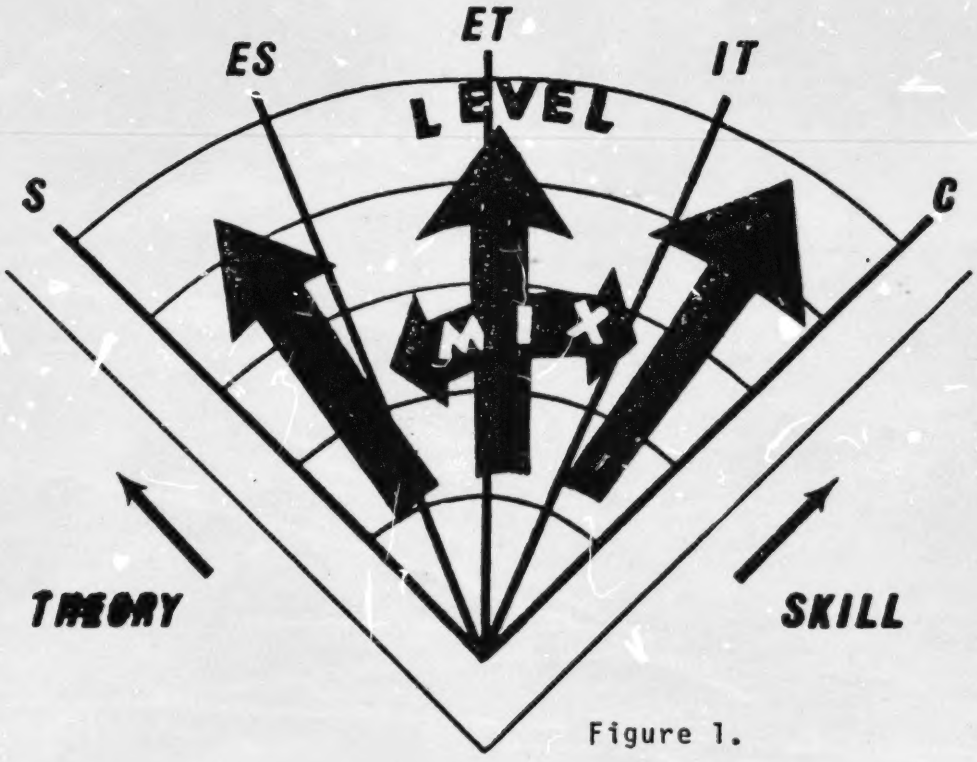

Figure 1.

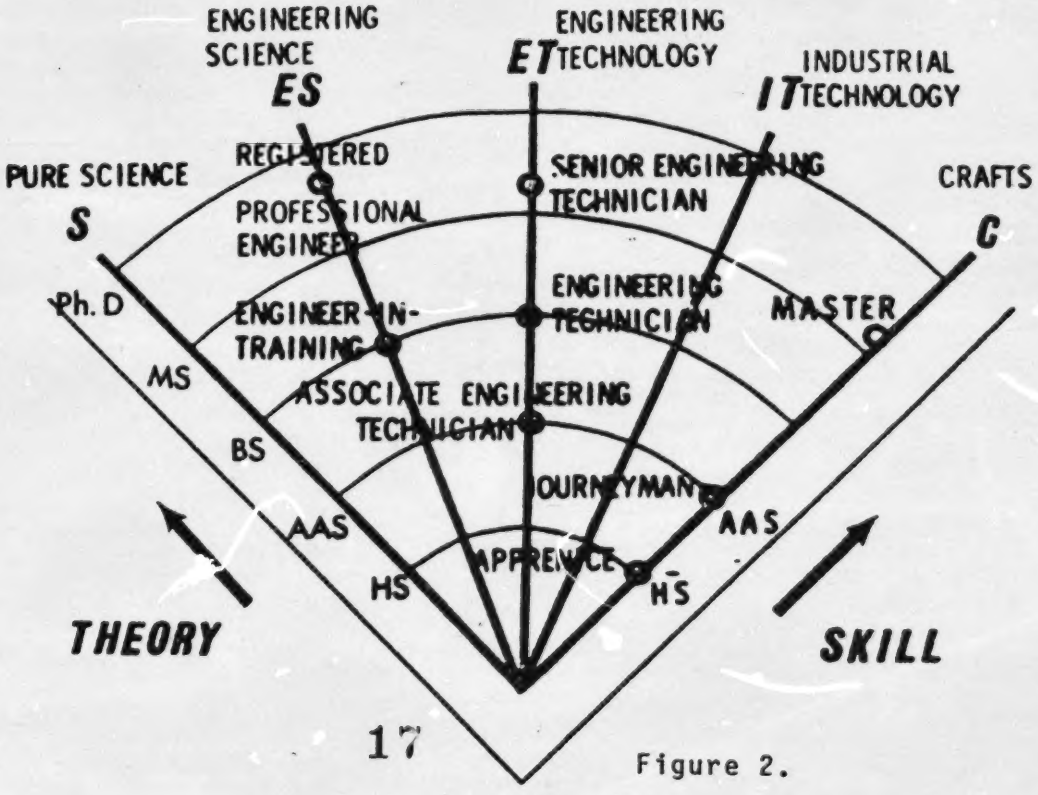

Figure 2.

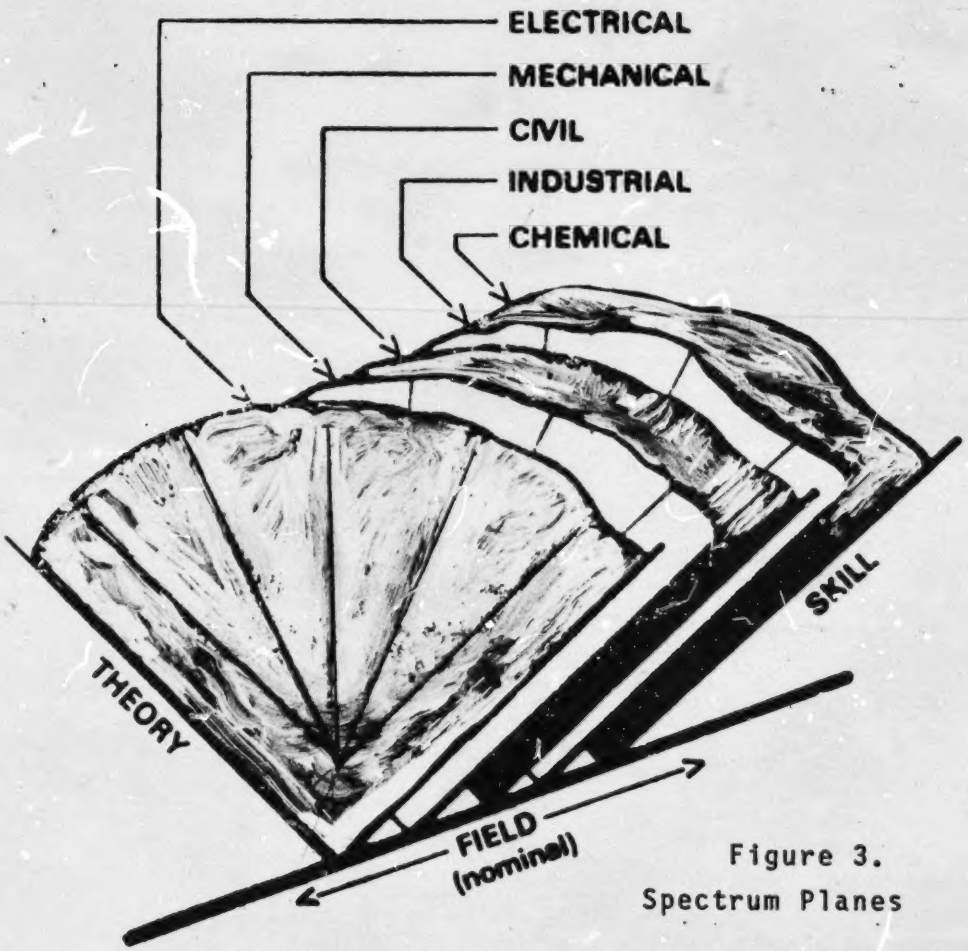

Figure 3.
Spectrum Planes

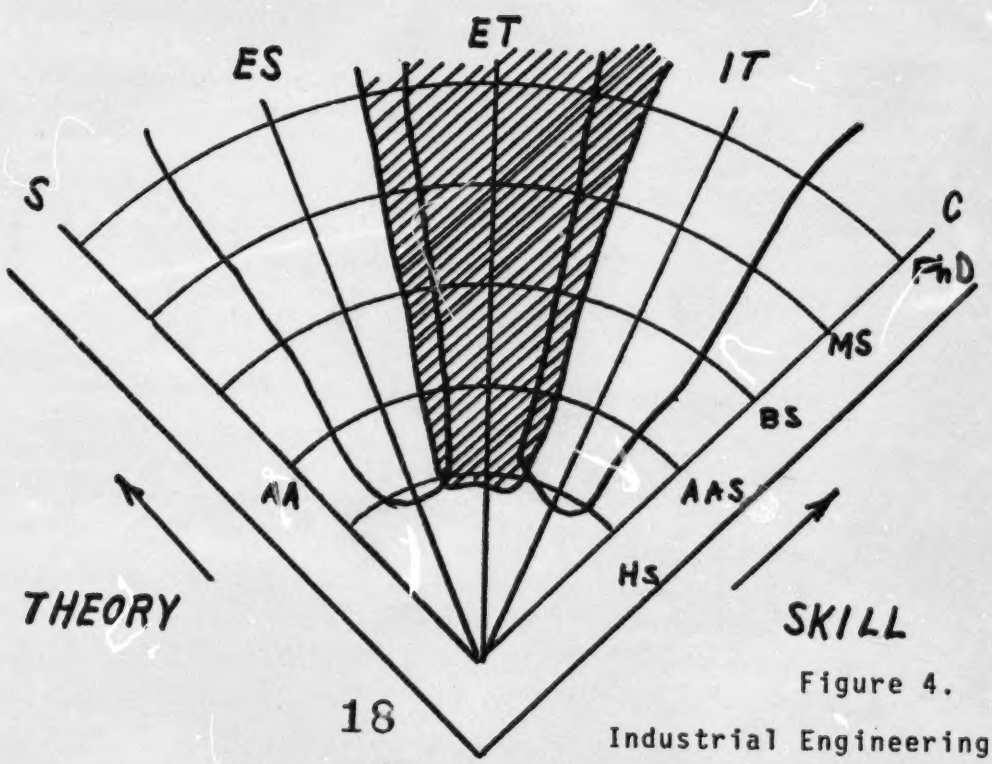

Figure 4.
Industrial Engineering Plane

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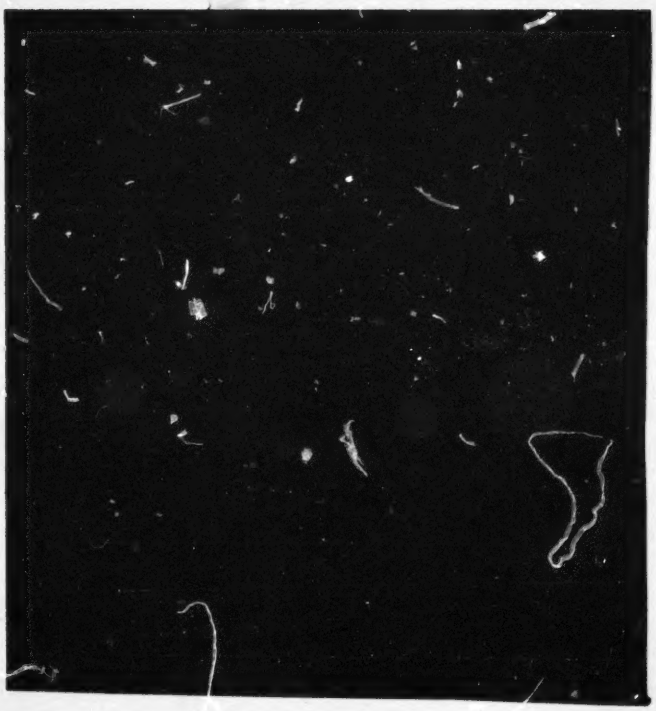

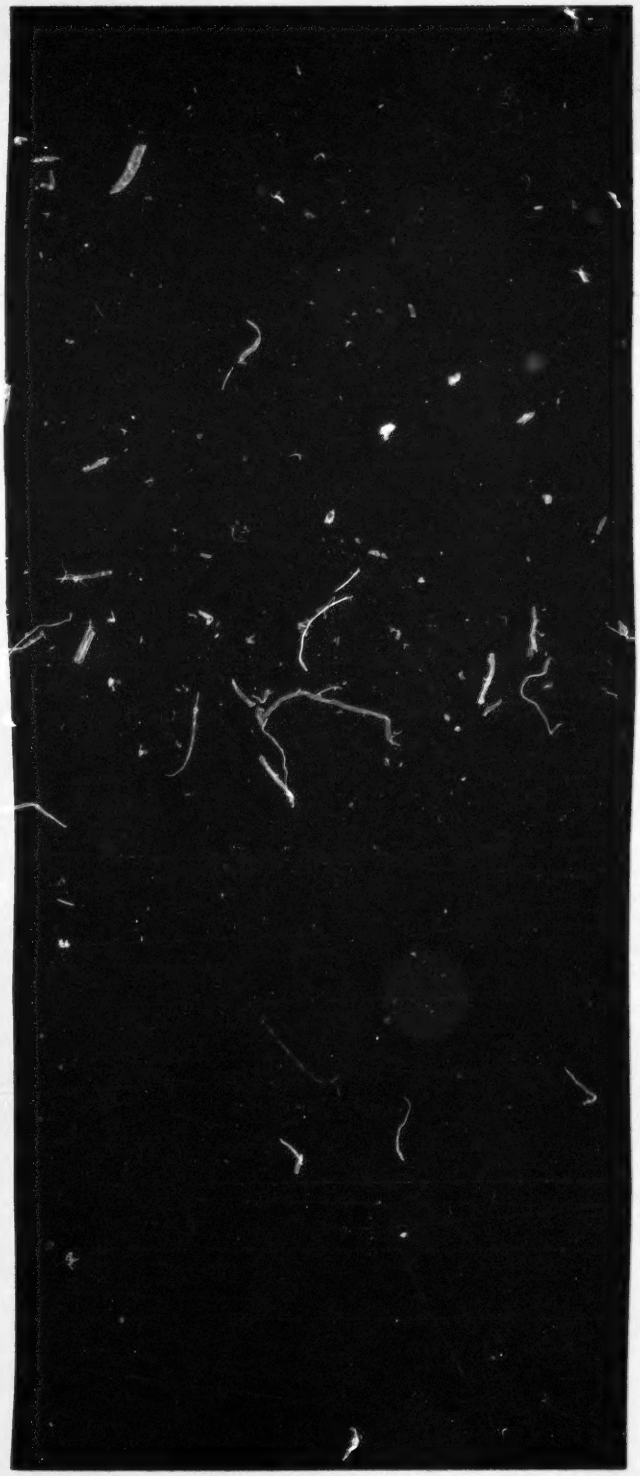

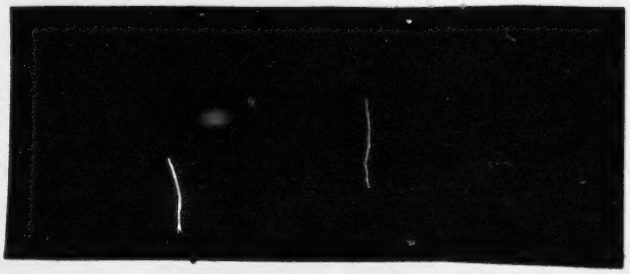

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